

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1.(currently amended) A method for forming a spin valve giant magnetoresistive (SVGMR) sensor element comprising:

forming a seed layer over a substrate, the seed layer being formed of a ~~magnetoresistive resistivity sensitivity enhancing~~ material selected from the group consisting of nickel chromium alloys, nickel-chromium-copper alloys and nickel-iron-chromium alloys;

forming a metal oxide buffer layer over the seed layer, said metal oxide buffer layer being comprised of NiO or $\alpha\text{-Fe}_2\text{O}_3$ and said metal oxide buffer layer having a thickness between about 5 and 15 Å;

forming a free ferromagnetic layer over said metal oxide buffer layer, wherein said free ferromagnetic layer and said metal oxide buffer layer have the same crystal structure and said free ferromagnetic layer and said metal oxide buffer layer have about the same lattice constants;

forming a non-magnetic conductor spacer layer over said free ferromagnetic layer;

forming a pinned ferromagnetic layer over the non-magnetic conductor spacer layer; and

forming a pinning material layer over the pinned ferromagnetic layer [[18]]; and
forming a capping layer over said pinning material layer.

2.(currently amended) The method of claim 1 ~~which further includes~~ including:

forming a high conductivity layer (HCL) on said metal oxide buffer layer and
forming said free ferromagnetic layer on said high conductivity layer (HCL) ~~thereby~~
~~creating a spin filter giant magnetoresistance (GMR) sensor element.~~

3.(currently amended) The method of claim 1 ~~which further includes~~ including
forming a high conductivity layer (HCL) on said metal oxide buffer layer and forming
said free ferromagnetic layer on said high conductivity layer (HCL); said high
conductivity layer is comprised of Cu or Cu-Ni alloy and has a thickness between 10 and
30 Å, thereby creating a spin filter giant magnetoresistance (GMR) sensor element.

4.(canceled)

5.(canceled)

6.(original) The method of claim 1 wherein said seed layer is comprised of NiFeCr.

7.(canceled)

8.(currently amended) The method of claim 1 wherein said free ferromagnetic layer is comprised of CoFe, CoFe/NiFe, or Co/NiFe and has a thickness of 20 to 30 Å.

9.(canceled)

10.(original) The method of claim 1 wherein the free ferromagnetic material layer and the pinned ferromagnetic material layer are each formed of a ferromagnetic material selected from the group consisting of nickel, iron and cobalt ferromagnetic materials, alloys thereof, laminates thereof and laminates of alloys thereof.

11.(original) The method of claim 1 wherein said pinned ferromagnetic layer is composed of a material selected from the group consisting of CoFe and Co; and has a thickness of between about 10 and 30 Å.

12.(original) The method of claim 1 wherein a pinning material layer is comprised of a material selected from the group consisting of MnPt, IrMn and MnNi.

13.(original) The method of claim 1 wherein said capping layer consists of a material selected from the group consisting of MiFeCo, NiCr, and Ta and has a thickness between about 40 and 60 Å.

14.(canceled)

15.(currently amended) A method for forming a spin filter giant magnetoresistive sensor element comprising:

forming a seed layer over a substrate, said seed layer being formed of a ~~magnetoresistive resistivity sensitivity enhancing~~ material selected from the group consisting of nickel chromium alloys, nickel-chromium-copper alloys and nickel-iron-chromium alloys;

forming a metal oxide buffer layer over the seed layer, said metal oxide buffer layer being comprised of NiO or α -Fe₂O₃ and said metal oxide buffer layer being formed to a thickness between about 5 and 15 Å;

forming a high conductivity layer on said metal oxide layer;

forming a free ferromagnetic layer over said metal oxide buffer layer , wherein said free ferromagnetic layer and said metal oxide buffer layer have the same crystal structure and said free ferromagnetic layer and said metal oxide buffer layer have about the same lattice constants;

forming a non-magnetic conductor spacer layer over said free ferromagnetic layer;

forming a pinned ferromagnetic layer over the non-magnetic conductor spacer layer; and

forming a pinning material layer over the pinned ferromagnetic layer [[18]]; and

forming a capping layer over said pinning material layer.

16.(currently amended) The method of claim 15 ~~which further includes:~~ wherein said high conductivity layer is comprised of Cu or Cu-Ni and has a thickness between 10 and 30 Å.

17.(currently amended) The method of claim 16 wherein said pinned ferromagnetic layer is ~~composed of~~ formed as a three layer structure comprising: (a) a lower AP layer, (b) a non-magnetic conductor spacer layer and (c) an upper AP layer wherein said non-magnetic conductor spacer layer induces anti-ferromagnetic coupling between said lower AP layer and said upper AP layer which enhances the Pinning effect.

Claims 18-30 are canceled.